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NO. 1632

IN THE

Supreme Court of the United States

OCTOBER TERM, 1970

HUGHES TOOL COMPANY, *Petitioner*

v.

INGERSOLL-RAND COMPANY, *Respondent*

PETITION FOR WRIT OF CERTIORARI

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PETITION FOR WRIT OF CERTIORARI

Petitioner Hughes Tool Company respectfully petitions this Court for a Writ of Certiorari to review the judgment of the United States Court of Appeals for the Fifth Circuit entered in this proceeding February 5, 1971.

OPINIONS BELOW

The opinion of the United States District Court for the Southern District of Texas is reported at 305 F. Supp. 1119; and 163 U.S.P.Q. 125. The opinion of the Court of Appeals for the Fifth Circuit is reported at ____ F.2d ____; and 168 U.S.P.Q. 545.

JURISDICTION

The judgment of the United States Court of Appeals for the Fifth Circuit was entered on February 5, 1971. A timely petition for rehearing was denied on March 17, 1971. This petition for writ of certiorari was filed within the

time allowed by 28 U.S.C. § 2101(c). Jurisdiction is conferred upon this Court by 28 U.S.C. § 1254.

QUESTION PRESENTED

Must the lower courts, and counsel as well, continue to struggle with the unrelated, but oft confused, issues of novelty and non-obviousness, which are fundamental to all patent cases, without the benefit of complete and settled legal standards and definitive statement of the essential factual inquiries against which these standards are to be applied; or will this Court now settle those standards and define the essential factual inquiries by completing what it began, but left unfinished, in the *Graham v. Deere* trilogy, 383 U.S. 1 (1966) and *United States v. Adams*, 383 U.S. 39 (1966)?

THE STATUTORY PROVISIONS INVOLVED

35 U.S.C. § 102. CONDITIONS FOR PATENTABILITY; NOVELTY AND LOSS OF RIGHT TO PATENT.

"A person shall be entitled to a patent unless—

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, or

* * *

(e) the invention was described in a patent granted on an application for patent by another filed

in the United States before the invention thereof by the applicant for patent, or

* * *

(g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it . . ." July 19, 1952, c. 950, § 1, 66 Stat. 797.

35 U.S.C. § 103. CONDITIONS FOR PATENTABILITY; NON-OBVIOUS SUBJECT MATTER.

"A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made." July 19, 1952. c. 950, § 1, 66 Stat. 798.

STATEMENT OF THE CASE

Petitioner Hughes Tool Company sued Ingersoll-Rand Company for infringement of Hughes' U. S. Patent No. 3,185,228. Suit was brought in the United States District Court for the Southern District of Texas, pursuant to the provisions of 28 U.S.C. § 1338.

The Hughes patent is directed to a percussion drilling bit. Such bits are driven into the earth by repeated impacts from an air hammer while the bit is slowly rotated in the hole being drilled. Percussion bits are primarily used to drill blast holes in rock quarries and to drill water wells.

The trial Court found the Hughes patent infringed. That determination was not appealed and the judgment of infringement is therefore final.

The trial Court then found the Hughes patent invalid on two grounds.

First, as being anticipated by two prior patents (No. 2,579,268 to Malherbe and No. 2,725,216 to Brown). On this issue the Court said:

> "Malherbe . . . effectively anticipates the patent in suit."
>
> and,
>
> ". . . Brown completely anticipates the patent in question, save in the rather insignificant particulars mentioned and discussed above."

This, even though all the elements of the Hughes patent could not be found in Malherbe, Brown or any other prior patent or disclosure and no evidence was offered or received to show that elements equivalent to the elements of the Hughes patent were present in any prior patent or disclosure.

Second, in the face of no evidence affirming the point, and certain evidence to the contrary, the trial Court, acting on its own "expertise" in the art rather than on the evidence adduced, found the Hughes patent obvious by simply saying:

> ". . . the only contribution which the patent in suit makes over Brown, in my judgment was perfectly obvious."

In view of the record, Hughes made timely request for entry of findings respecting scope and content of the prior art, differences between the prior art and the patent in suit, and the level of ordinary skill in the art, all of which were made mandatory by this Court's judgment in *Graham, supra,* but the trial Court summarily refused to make such findings.

Hughes then appealed the trial Court's judgment of anticipation and obviousness.

The Court of Appeals affirmed as to anticipation, saying:

> " '[N]ovelty is lacking if all the elements of the patent, or their equivalents are found in a single prior art structure where they do substantially the same work in the same way.' " (citations omitted)

even though the record clearly shows that all the elements of the Hughes patent cannot be found in any single piece of prior art and no proof of equivalence was offered or received.

The Court of Appeals did critically note the trial Court's failure to make those findings which this Court has made a mandatory condition precedent to resolving the non-obviousness question, but they did nothing affirmative respecting that issue notwithstanding Hughes' timely request for remand to make such findings.

REASONS FOR ALLOWANCE OF THE WRIT

An invention is validly patentable if it is useful, novel and non-obvious. 35 U.S.C. §§ 101, 102 and 103, respectively; *U. S. v. Adams, supra.* This much, albeit extremely general, is settled and well known.

It is equally settled and well known that an issued patent is presumed valid (35 U.S.C. § 282) and that the burden of overcoming this presumption and proving invalidity rests upon the party attacking the patent (*Id.*).

When counsel advise in contemplation of suit and courts judge on conclusion of suit, the question of utility (§ 101) is simple enough. The term "useful" is one of common parlance and its office as a standard of law is patently clear. Thus, if a patent is to be invalidated for want of utility, a factual inquiry must be made to determine whether, when the patented item is "turned on", it will work; and it is Defendant's duty to demonstrate that it will not work by "turning the item on" and presenting the results to the Court. If Defendant thereby establishes that the item does not operate when it is "turned on", he has carried his burden of proving want of utility and the Court must so find and invalidate the patent. If Defendant does not or cannot so prove, then the patent has met the first test of validity and the Court must so find.

In the present case, the Hughes patent passed the test of utility.

Resolution of the novelty question (§ 102) should be equally uncomplicated. After all, § 103 refers back to and clearly defines what Congress meant by the novelty provisions of § 102 and does so in unequivocal terms:

> ". . . though the invention is not *identically disclosed or described* as set forth in Section 102. . . ." (Emphasis ours).

If the statute is to be followed and a patent is to be invalidated for want of novelty, a factual inquiry must be made to determine whether all the elements recited in

the patent claim defining the invention are or are not identically disclosed or described in a prior description or disclosure. Again, it is Defendant's burden to so demonstrate by presenting the results of a point by point comparison between the elements of the claim and elements of the prior disclosure. If he does not or cannot show identity between the two, he has failed his burden of proof, the patent has passed its second test of validity, and the Court must so find.

Defendant in the present case failed to establish a prior identical disclosure. This is clear in both the record and the trial Court's opinion. The Hughes patent therefore passed this second test of validity and the lower Courts erred in not so finding.

It is here that the first essential but yet unsettled point arises. To illustrate, the Sixth, Ninth and Tenth Circuits recognize and follow the statutorily defined standard of novelty just discussed:

> "Novelty by reason of anticipation is lacking if it appears that all of the elements of the patent in question are found in one single description or structure where they do substantially the same work in the same way." *Bain v. M. A. Hanna Co.,* 331 F.2d 974, 978 (6th Cir. 1964).

> "Anticipation is strictly a technical defense and unless all of the same elements are found in exactly the same situation and united in the same way to perform an identical function, there is no anticipation. National Lead Co. v. Western Lead Products Co., 9 Cir., 324 F.2d 539; Stauffer v. Slenderella Systems of California, 9 Cir., 254 F.2d 127." *McCullough Tool Co. v. Well Surveys, Inc.,* 343 F.2d

381, 398 (10th Cir. 1965) *cert. denied*, 383 U.S. 933.

The Fifth Circuit has, however, chosen to secede, at least from the statute, and has adopted a differently defined and erroneous standard of novelty:

> ". . . novelty is lacking if all the elements of the patent, *or their equivalents* are found in a single prior art structure where they do substantially the same work in the same way." *Kiva Corp. v. Baker Oil Tools, Inc.*, 412 F.2d 546 (5th Cir. 1969) *cert. denied*, 396 U.S. 927. (Emphasis ours).

thereby partially and erroneously combining the §102 and §103 statutory requirements without proper application of either.

Further compounding the difficulties presented by circuit to circuit variation in legal standards is the fact that none of the circuits has yet defined or come to any uniform understanding of the essential factual inquiry against which a standard of novelty is to be applied and the issue resolved.

Assuming, arguendo, the propriety of using the non-statutory court-enacted standard of novelty which now obtains in the Fifth Circuit, a Defendant who fails to prove objective identity between the patent in suit and a prior description or disclosure may continue his attack on novelty by attempting to prove that equivalent elements are present in the prior disclosure in place of the missing identical elements.[1]

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1. We are constrained to suggest that this variation between circuits is of sufficient substance to raise serious questions respecting possible abridgement of the Constitutional right of patentees and infringers alike to equal protection of law regardless of forum circuit.

Since this Court has now settled the standard of equivalents by saying that two devices are equivalent only if they in fact perform:

> ". . . substantially the same function in substantially the same way to obtain the same result." *Graver Tank & Mfg. Co., Inc. v. The Linde Air Products Company,* 339 U.S. 605, 608 (1950),

it mandatorily follows that when novelty is attacked on the premise that equivalent rather than identical elements are found in the prior disclosure, the essential factual inquiry is whether the elements alleged to be equivalent do in fact perform ". . . substantially the same function in substantially the same way . . ." as the alleged corresponding element or elements of the patented device.

Quite obviously, nothing short of results obtained from actual operation of the prior device (obtained from either test runs or commercial operations) can establish how the prior device functions or, for that matter, whether it functions at all. Such results are therefore required to carry the burden of proving want of novelty by reason of equivalence, if that is to be the standard. There is no other way to prove "function" and result, and it is Defendant's burden to so demonstrate. If he does not or cannot so demonstrate by the presentation of such actual operating results, he has failed his burden of proving want of novelty by reason of equivalence, the patent has passed even this hybrid non-statutory test of validity, and the court must so find.

In the present case, Defendant did not offer any evidence whatever to show how a prior device "functioned" and what results were achieved. This being so, the Hughes

patent also passed the Fifth Circuit's self-enacted test of novelty, and the courts erred in not so finding.

The second essential point which remains unsettled and with respect to which there is widespread confusion and conflict[2] is the process by which the question of obviousness or non-obviousness is to be resolved.

Historically, bench and bar alike have taken the view that "obviousness" or "non-obviousness", as a standard of invention, referred to a quality or character too fugitive and subjective to be factually established. It was therefore announced that obviousness was purely a question of law, *Great Atlantic & Pacific Tea Company v. Supermarket Equipment Corporation*, 340 U.S. 147, 153-156 (1950), and each lawyer and judge to whom the question came was thereafter licensed and required to take his turn at guessing the answer.

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2. See, for example, the following Petitions for Certiorari filed during the 1970 term of this Court in which this Court has been repeatedly asked, in one way or another, to clarify and settle the process by which obviousness or non-obviousness is to be resolved by completing what was left unfinished in *Graham*.

Skega Aktiebolag & Allen Pump Co. v. B. F. Goodrich Company, case No. 305.

Blonder-Tongue Laboratories, Inc. v. University of Illinois Foundation, case No. 338.

Decca Limited v. United States, case No. 407.

Stevenson v. Diebold, Inc., case No. 487.

Bada Co. v. Montgomery Ward & Co., Inc., case No. 597.

United States v. Garrett Corp., case No. 674.

Uniflow Manufacturing Co. v. King-Seeley Thermos Co., case No. 697.

Escambia Chemical Corp. v. Stamicarbon, N.V., case No. 700.

Minnesota Mining and Manufacturing Co. v. Norton Company, case No. 988.

Stahlin Bros. Fibre Works, Inc. v. Panduit Corp., case No. 1064.

Package Devices, Inc. v. Sun Ray Drug Co., case No. 1141.

It was not until 1966 when this Court handed down its opinion in *Graham, supra,* that application of the obviousness standard became something more than a game of chance and quite nearly a process of law.

> "Under §103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background the obviousness or non-obviousness of the subject matter is determined." *Graham v. Deere,* 383 U.S. 1, 17 (1966).

Handling the inquiries respecting what is contained in the art and what the invention has added creates no problem. The art and the patent in suit are presented, explained and compared and the differences recorded.

What remains a mystery is the process by which ". . . level of ordinary skill in the pertinent art . . ." is to be resolved. Shall it continue to be just the best after-the-fact guess of those to whom the question comes or is it to be reached by process of law? Counsel and the lower courts do not know because this Court has not said.

Sooner or later, process of law must surely be the answer.

We think that resolution through process of law requires asking and answering two questions of ultimate fact which are inherently included in the inquiry itself:

(1) What problem did the invention solve?

(2) Did someone working in the art at or before the time the invention was made know the problem and produce the same structural, functional and workable solution, a different solution or no solution?

The essential character of these two included questions is manifest in the questions themselves. If a Defendant proves by fact evidence, either testimonial or real, that a person or persons working in the art at the time of the invention knew the problem and produced the same structural, functional and workable solution as the inventor, the court must conclude that the invention was obvious and find the patent invalid on that ground. If, on the other hand, such person or persons produced a structurally and functionally different solution or no solution at all, the patent has passed its third and final test of validity, the court must conclude that the invention was non-obvious and find the patent valid.

Neither logic nor common sense permits any other approach if we are ever to resolve the issue by process of law rather than the best guess of counsel and courts who plainly are not "skilled in the art".

Unless and until this Court settles and explains the essentiality of these two included questions, we cannot possibly escape continued resolution of the obviousness issue through trial by lottery.

The evidence in this case proved that Defendant's own personnel who were working in the art at and prior to the time of the invention knew the problem and attacked it, but did not produce a solution. Note, for example, Defendant's own engineering evaluation of the Hughes invention:

> "There is current evidence to indicate that a competitive effort [by Plaintiff Hughes] is being made to develop a bit requiring no resharpening and displaying improved drilling performance. The impact of the successful culmination of such a development on

> our [I-R's] bit position could be disastrous." *Ingersoll-Rand Engineering Report of April 25, 1963* (Plaintiff's Trial Exhibit 20).

The Hughes patent therefore passed the test of non-obviousness and the Court erred in not so finding.

CONCLUSION

The public, the bar and the lower courts need, are entitled to obtain, and this Court is socially, if not legally, obligated to now provide:

(1) A settled, cogently stated and uniform legal standard of novelty, whether it be the statutory standard of identical disclosure or the court-enacted standard of identically-equivalent disclosure;

(2) A definitive, understandable statement of the essential fact questions which must be affirmatively answered before want of novelty can be concluded; and,

(3) A definitive, understandable and complete statement of all the essential fact questions which must be affirmatively answered before obviousness can be concluded.

Unless and until these basic points are settled in understandable and workable form, the guessing game will continue, both patentees and infringers will continue to suffer judgment by chance, confusion will increase and court calendars will be needlessly enlarged.

This particular case provides precisely the right framework within which these three critical and generic points can now be settled. The issues in the case itself are direct

and uncluttered, the record is clear, the invention involved is especially meritorious, and for nothing but want of guiding criteria, the courts below have plainly erred.

Respectfully submitted,

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Of Counsel:

MARCUS L. THOMPSON, and
ANDREWS, KURTH, CAMPBELL & JONES

CERTIFICATE OF SERVICE

I hereby certify that the foregoing PETITION FOR WRIT OF CERTIORARI was served on Respondent INGERSOLL-RAND COMPANY by mailing a copy thereof to Jefferson D. Giller, Esq., its attorney of record, at his offices at 800 Bank of the Southwest Building, Houston, Texas on this the _____ day of April, 1971.

Paul E. Harris

APPENDIX

IN THE

United States District Court

FOR THE SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION

CIVIL ACTION NO. 68-H-624

HUGHES TOOL COMPANY

v.

INGERSOLL-RAND COMPANY

Andrews, Kurth, Campbell & Jones (Paul Harris, Esq.), Houston, Texas, attorneys for Plaintiff.
Fulbright, Crooker, Freeman, Bates & Jaworski Dudley R. Dobie, Jr., Esq., and Jefferson D. Giller, Esq.), Houston, Texas, and Sandoe, Hopgood & Calimafde (J. M. Calimafde, Esq.), New York, New York, attorneys for Defendant.

August 13, 1969

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[1]

MEMORANDUM:

FINDINGS OF FACT

Plaintiff Hughes Tool Company is a Delaware corporation having a principal place of business in Houston, Texas. Defendant Ingersoll-Rand Company is a New

Jersey corporation having a place of business in Houston, Texas. The patent in suit, No. 3,185,228, was filed on January 21, 1963, and was issued May 25, 1965, [2] to J. L. Kelly, Jr., a Hughes' employee. The patent was assigned to Hughes and is owned by Hughes. Only Claims 3 and 7 have been asserted by plaintiff.

As is usual in controversies of this nature, the plaintiff sues for infringement; and the defendant attacks the validity of the patent.

The patent in suit covers a percussion-rotary type drill bit. This type of bit is used primarily for drilling shallow holes such as for the quarrying of rock or minerals, or for the drilling of water wells. In operation, this type bit is struck a series of hard and rapid blows by a hydraulic hammer (approximately 1,000 blows per minute) and at the same time is rotated rather slowly (about 20 revolutions per minute).

Defendant Ingersoll-Rand has been a leader in the manufacture and sale of percussion-rotary type bits for many years. The bit which it most commonly used, and which still enjoys wide popularity, is referred to as the "crosshead" or "X" bit. This bit has chisels imbedded in the face of the bit in the form of an x. These chisel inserts are of tungsten carbide, a very hard metal. The [3] chisels extend laterally slightly beyond the body of the bit, so that a hole is cut slightly larger than the body of the bit. Of course, this is necessary to prevent the bit from becoming stuck or wedged in the hole.

Hughes Tool Company for many years has been a leader in the manufacture and sale of bits for drilling in the oil and gas industry, but only recently entered the field of percussion-rotary bits of this nature. After securing the

patent in question, Hughes manufactured and sold the so-called "button bit" essentially as exemplified in the patent in suit. A button-type bit is one wherein the cutting elements mounted in the face of the bit (comparable to the chisels in the "X" bit) are essentially in the shape of half-spheres or buttons extending across the face. The face is circular in shape and the peripheral edge of the bit is chamfered to receive a heel row of buttons. It is alleged by Hughes that there is novelty in mounting the buttons in the heel row at an angle to the axis of the bit, so that the buttons extend below the bottom surface and beyond the peripheral surface. These buttons likewise are tungsten carbide inserts. The heel row buttons, extending [4] slightly beyond the peripheral surface by reason of being imbedded in the chamfered edge, cut a hole of slightly larger gauge than the body of the bit, to prevent wedging.

The plaintiff claims many advantages for its button bit over the "X" bit, primarily (1) a much reduced need for repeated sharpening of the cutting elements, and (2) a reduced inclination to wedge in the hole. It is true that the chisels of the "X" bit become dulled, and the bit must be removed from the hole and the chisels sharpened. Of course, this is an expense not alone for the sharpening, but for the down-time of the drilling operation. The buttons require less frequent treatment of this nature. Further, it is alleged that the chisels of the "X" bit have a tendency to become worn to a great degree at the gauge of the hole, that is, at the periphery. This is so because the greater amount of the cutting work is done there, rather than toward the center of the hole. It is urged that the chisels become more worn on the corners after much use; that after this wear the bit fails to cut the larger hole; and that the bit becomes wedged.

[5] The button bit of the type produced by the plaintiff Hughes has met with considerable market success. While the "X" bit still outsells the button bit by a very wide margin, the evidence shows, and I find, that in certain types of rock formation the button bit is superior. In a great many other types of drilling, the "X" bit still seems to be much preferred.

After the button bit was developed and sold by Hughes, the defendant Ingersoll-Rand offered a button bit on the market. It is quite similar in many respects. It is conceded by Ingersoll-Rand that its button bit infringes in all respects as to Claim 7. I am of the view that it likewise infringes as to Claim 3. As noted hereafter, however, I am likewise of the view that the patent is invalid and that it was completely anticipated by the prior art.

THE PRIOR ART

Percussion bits were well known long prior to the filing date of the patent in suit. The shape of the bit body is conventional. The use of inserts of very hard [6] material such as hardened steel, diamonds, and carbide implanted in the face of a drill bit also was well known long prior to the patent in suit.

The defendant cites and relies primarily on three patents as prior art. They are No. 2,579,268 to Malherbe; No. 3,071,201 to Phipps; and No. 2,725,216 to Brown.

Malherbe discloses a percussion bit utilizing carbide inserts in the form of small chisels wherein the heel row of inserts is oriented at an angle to the axis and extends below the bottom surface and beyond the peripheral surface of the bit body. This patent effectively anticipates the patent in suit.

The most pertinent reference, however, is No. 2,725,216 to Brown. This patent discloses a rotary percussion bit with a heel row of buttons angularly disposed and extending below the bottom surface and beyond the peripheral surface. It is, in my judgment, distinguished from the patent in suit in only one material respect. In Brown, the buttons are of steel and are a part of the bit body. In the patent in suit, the substitution is made of [7] replacing the steel buttons with tungsten carbide inserts. As noted above, the use of tungsten carbide, diamond, or other very hard material as inserts for doing the actual cutting is not new and has been known in this and other arts for years. The substitution, which is the only contribution which the patent in suit makes over Brown, in my judgment was perfectly obvious.

Plaintiff Hughes challenges the Brown reference for an added reason. It is contended that Brown teaches that the heel row of inserts actually reams the sidewall of the hole, as distinguished from the bottom; while Kelly teaches that reaming of the sidewall is a mistake, and leads to wedging. It is true that the Brown patent makes reference to the cutting of the sidewall. However, any difference between the operation of the two in this respect would depend upon the angle at which the heel row of buttons is set into the body of the bit. Kelly does not specify any particular angle for his heel row. He specifies only an acute angle. Similarly, in Brown it appears that the angle may vary. Brown uses as an illustration an angle of 45 degrees for the heel row inserts. Kelly states (column 7, line 20):

[8] "The particular angle of inclination of heel inserts used in the test bits described above varied from 30-38 degrees from vertical but this angle will also vary with the type formation drilled."

If, in fact, the heel rows on Brown would cut the sidewall above the corner formed by the bottom of the hole and the sidewall, and if Kelly cuts at the corner, this is a distinction without a difference. The differential distance between the two is so small as to be insignificant. In fact, Figure 7 of Kelly showing as an alternative a concave bottom of the bit would have the heel row cuts further from the bottom than is shown by Brown.

While I do not consider that it rises to the dignity of file wrapper estoppel as defendant contends, it is interesting to note that in the presentation of the matter to the Patent Office counsel in support of the Kelly patent states that as to all of the bits shown by Brown, "There is nothing to prevent the outer surface of each bit from wearing most rapidly at the intersection of the bottom and side surface." Thus I consider this difference, if there be one, was not considered of significance at the time of presentation, and I do not consider it significant now.

[9] One feature which every bit of this character must possess if it is to work at all is means for removal of the cuttings from the bottom of the hole. This is almost always accomplished (as it is here) by courses through the body of the bit wherein either compressed air, water, or other drilling fluid is injected into the bottom of the hole. There the air picks up the cuttings and removes them through a plurality of longitudinal slots along the peripheral surface of the bit body. When the cuttings are thus removed in a stream of air or water, the face of the bottom of the bit is eroded by the friction of the cuttings against such bit face.

Claim 3 of the patent in suit incorporates by reference the subject matter of Claim 1, and states further that the

peripheral surface of the bit body has a plurality of longitudinal slots to promote wearing of the surface at least "as fast as" the rate of wear of the heel row of buttons. By this is meant that it was the inventor's intention that the abrasive action of the cuttings removed by the air stream would cut away the face of the bit at least as fast as the rate of wear of the buttons. Thus, hopefully, the length by which the buttons protruded below [10] the face of the bit would remain approximately the same. This claim is vague, indefinite and uncertain. The expression "at least as fast" implies a rate of wear of the peripheral surface which is faster than that of the button inserts. This would be undesirable, as a greater accelerated rate of wear of the peripheral surface would simply erode away the supporting metal for the inserts, as result of which they would fall out. Additionally, the patent specification does not teach how to control this rate of wear. The rate of wear would depend upon many variables, such as the velocity of the air carrying the cuttings, the location and number of exhaust holes, the hardness of the rock formation of which the cuttings formed a part, the hardness of the steel, etc. This claim, and the illustrations in the patent of the longitudinal slots, make no contribution and are inconsistent and misleading.

Claim 7 asserted by plaintiff is essentially the same as Claim 1, except that it calls for the edge of the bit to be chamfered. Chamfering of an edge to facilitate drilling holes is unpatentable. It is merely [11] a manufacturing expedient and has been well known and frequently used for similar applications in a great many instances. Alternating, or spaced chamfering, to permit the heel row buttons to be seated at an angle is shown by Brown.

I recognize that one of the references cited by the Examiner of the Patent Office was Brown 2,725,216, and I recognize the strong presumption in favor of validity resulting from this circumstance. I am convinced, however, that Brown completely anticipates the patent in question, save in the rather insignificant particulars mentioned and discussed above.

The claims are invalid under 35 U.S.C.A. § 102 as being fully anticipated by the patents of Malherbe and Brown. The claims likewise are invalid under 35 U.S.C.A. § 103 as representing nothing more than obivous differences over the prior art.

CONCLUSIONS OF LAW

This Court has jurisdiction over the parties and the subject matter.

[12] The claims involved are invalid under 35 U.S.C.A. §§ 102 and 103.

The action is dismissed at plaintiff's cost.

Counsel for the defendant will present appropriate decree to counsel for the plaintiff, for approval as to form, in due course. If objections to the form are made, counsel for the plaintiff will advise the Court in writing with respect thereto.

Clerk will notify counsel.

Done at Houston, Texas this 13th day of August, 1969.

BEN C. CONNALLY
United States District Judge

IN THE

United States Court of Appeals

FOR THE FIFTH CIRCUIT

No. 28704

HUGHES TOOL COMPANY,
Plaintiff-Appellant,

versus

INGERSOLL-RAND COMPANY,
Defendant-Appellee.

Appeal from the United States District Court for the Southern District of Texas

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(February 5, 1971)

Before GODBOLD, SIMPSON and MORGAN, Circuit Judges.

GODBOLD, Circuit Judge: Hughes Tool sued Ingersoll-Rand charging infringement of Claims 3 and 7 of plaintiff's United States patent, which is Kelly, No.

3,185,228, directed to a bit for use in percussion drilling.[1]

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1. In percussion drilling the bit is mounted beneath a pneumatic tool which delivers rapid blows to the top of the bit, driving the cutting elements of the bit downward into the formation being drilled.

Plaintiff's claims in issue are 3 and 7. Those claims, plus Claim 1 (which is referenced in Claim 3) are:

CLAIM 1

A rotary-percussion bit which does not require repeated dressing to maintain its usefulness throughout its life comprising:

a metallic body portion having an outer peripheral surface and a lower surface extending generally transverse the longitudinal axis of said bit;

a plurality of discrete, wear resistant inserts rigidly secured in said body with cutting tips protruding beyond said lower surface;

said inserts being disposed in spaced apart relationship in circumferential rows each containing at least one insert to disintegrate the borehole bottom during rotation and percussion;

the inserts in the outermost of said circumferential rows being disposed at an acute angle with the longitudinal axis of the bit so that the inner ends of such inserts are buried within the body in spaced relationship to said peripheral surface and the protruding cutting tips extend beyond both said peripheral surface and said lower surface at about the intersection thereof, whereby the wedging which would otherwise occur in subjecting said outer peripheral surface to abrasive contact with the borewall of the hole is avoided;

CLAIM 3

The rotary-percussion bit of claim 1 in which the outer peripheral surface of said bit body has a plurality of longitudinal slots to promote wearing of said surface by flushing fluid and cuttings at least as fast as the rate of wear of the outer portions of said outermost row of inserts.

CLAIM 7

A rotary-percussion bit comprising:

a body having an outer peripheral surface and a lower surface extending generally transverse the longitudinal axis of said bit;

said bit body having an internal flushing fluid passageway system which includes at least one longitudinal passage extending from the top of the body and terminating in a port in one of said surfaces;

the intersection of said surfaces being slightly chamfered by a surface making an acute angle with each of said outer peripheral surface and said bottom surface;

The District Court found that Ingersoll-Rand had infringed as charged but also held the Kelly patent invalid for anticipation under 35 U.S.C. § 102 and for obviousness under 35 U.S.C. § 103. Additionally, the court held Claim 3 invalid because of its being vague, indefinite and uncertain.[2] We affirm on the finding that the Kelly patent was anticipated by Brown, No. 2,725,216, the prior art on which the District Court chiefly relied for its conclusion of Kelly's lack of novelty. Views of Kelly and Brown appear at the end of this opinion.

"[N]ovelty is lacking if all the elements of the patent, or their equivalents are found in a single prior art structure where they do substantially the same work in the same way." *Kiva Corp. v. Baker Oil Tools, Inc.*, 412 F.2d 546, 552 (5th Cir.) *cert. denied*, 396 U.S. 927, 24 L.Ed.2d 226 (1969), *quoting A. J. Industries, Inc. v. Dayton Steel Foundry Co.*, 394 F.2d 357 (6th Cir. 1968). *See also Amphenol Corp. v. General Time Corp.*, 397 F.2d 431 (7th Cir. 1968); *Bain v. M. A. Hanna Co.*, 331 F.2d 974 (6th Cir. 1964); 1 Walker on Patents § 57 (2d Ed.

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a plurality of discrete, wear resistant inserts rigidly secured in said body with cutting tips protruding below said lower surface;

said inserts being disposed in spaced apart relationship in circumferential rows each containing at least one insert to disintegrate the borehole bottom during rotation and percussion;

the inserts of the outermost of said rows being disposed at an angle with the longitudinal axis of the bit so that the inner ends of the inserts are buried within the body in spaced relation from both of said bottom and outer peripheral surfaces and the cutting tips protrude from said chamfered surface;

said outermost row being thus disposed to protrude both axially and radially of the bit body to cut the outermost portion of the hole bottom and to prevent the bit from wearing into a wedging configuration.

2. 305 F. Supp. 1119 (S.D. Tex. 1969), 163 U.S. P.Q. 125.

1964). Anticipation (lack of novelty) by a prior art structure is largely a question of fact, *Sterner Lighting, Inc. v. Allied Elec. Supply, Inc.*, ____ F.2d ____ [No. 28599 5th Cir. Aug. 1970]. We find no basis on which the District Court's findings of anticipation of Kelly by Brown can be said to be plainly erroneous under Fed. R. Civ. P. 52(a). *See The Spee-Flo Mfg. Corp. v. Braniff Airways,* Inc. ____ F.2d ____ (No. 27718, 5th Cir. July 23, 1970).

As to Brown, the District Court found:

> The most pertinent reference, however, is No. 2,725,216 to Brown. This patent discloses a rotary percussion bit with a heel row of buttons angularly disposed and extending below the bottom surface and beyond the peripheral surface.

The appellant attacks the Brown reference on two grounds. First, in Brown the buttons — which protrude from the main body of the bit, and strike and cut the material in which the drilling is occurring — are of steel, and are a part of the bit body, while in Kelly the cutting instruments are tungsten carbide inserts implanted in the main body. It is readily seen that Kelly's inserts and Brown's buttons are very similar in structure, shape, and size. The differences between the two are in material used and in the mechanical concept of an implanted cutting instrument versus the cutting instrument fabricated as part of the body of the bit. The substitution of one material for another or the substitution of mechanical equivalents is not patentable. *See Dow Chem. Co. v. Halliburton Co.,* 324 U.S. 320, 89 L.Ed. 973 (1945); *Pullman, Inc. v. ACF Indus. Inc.,* 393 F.2d 83 (2d Cir. 1968); *National Connector Corp. v. Malco Mfg. Co.,* 392 F.2d 766 (8th Cir. 1968); *McCullough Tool Co. v. Well Surveys, Inc.,*

343 F.2d 381 (10th Cir. 1965), *cert. denied,* 383 U.S. 933, 15 L.Ed.2d 851 (1966); *B. F. Goodrich Co. v. United States Rubber Co.,* 244 F.2d 468 (4th Cir. 1957); 1 Walker on Patents § 57 (2d Ed. 1964). The District Court found that the use of inserts of hard material — such as hardened steel, diamonds and tungsten carbide — implanted in the body of a drill bit for doing the actual cutting is not new and has been known in the percussion bit art (and other arts as well) for many years. Considering the purposes of the buttons and the inserts — both employed as cutting instruments — the qualities of their combination with the other ingredients, the functions they are intended to perform, and whether persons reasonably skilled in the art would have known of the interchangeability of the two ingredients,[3] *Grover Tank Co. v. Linde Air Prod. Co.,* 339 U.S. 605, 609, 94 L.Ed.1097, 1103 (1949), it is clear that the two are mechanical equivalents. No claim is made in Kelly that the quality of implantation is a departure from the prior art and, as pointed out above, the District Court found that implants of cutting material had been known in the prior art for many years.

Hughes' second ground for challenging Brown as anticipating prior art is that Brown refers to cutting the sidewall of the borehole, while Kelly teaches that its outermost angulated row of bit inserts (the "heel row") are so arranged that during rotation and percussion they will strike and disintegrate the outermost portion of the bottom of the borehole. Appellant contends that Kelly thereby would avoid the wedging of the bit which would otherwise occur if the outer peripheral surface of the main body were subject to abrasive contact with the wall of the borehole. The

3 The District Court found that the substitution of tungsten carbide inserts for the steel buttons was "perfectly obvious."

District Court found that the distinction in the two patents which might produce this operational difference depends upon the angle at which the heel row of buttons are set into the body of the bit. The District Court found that Kelly, while referring to variations in the angle, specifies no particular angle but only an acute angle. The trial judge then concluded that cutting into the drilled material at the intersection formed by the bottom and the sidewall of the hole, as opposed to cutting into the sidewall above the intersection — by reason of a differing angulation of the buttons — is a distinction so subtle as to be immaterial. We note also that the District Court pointed out that one of the alternatives of Kelly showed a bit with a concave bottom, the heel row of buttons of which would cut further up the sidewall from the wall-bottom intersection than is shown by Brown.

We are aware, as was the District Court, of the presumption of validity springing from the fact that Brown was cited by the patent office. *See Sterner Lighting, Inc. v. Allied Elec. Supply, Inc., supra; Beckman Instruments v. Chemtronics, Inc.*, ___ F.2d ___ (No. 27412, 5th Cir. April 14, 1970), *cert. denied,* ___ U.S. ___, ___ L.Ed.2d ___ (1970). But the presumption may be overcome. We are not able to say that the District Court erred in finding that in this instance it was overcome.

Because of our conclusion as to Brown, we need not consider the finding that Kelly also was anticipated by Malherbe No. 2,579,628. The District Court concluded also that Claims 3 and 7 were invalid under 35 U.S.C. § 103 since they were nothing more than obvious differences from the prior art, and that the claims were invalid as being too vague. Because of our conclusion concerning anticipation by Brown, it is unnecessary for us to discuss

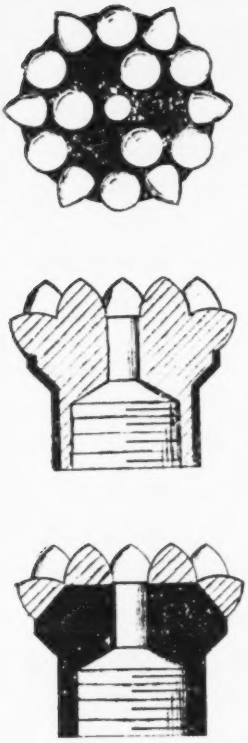
the § 103 issue of obviousness or the issue of vagueness. We do note, however, that it is strenuously urged the District Court failed to comply with the correct process for reaching a conclusion on § 103, as articulated in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 15 L.Ed.2d 545, 556 (1966):

> Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined.

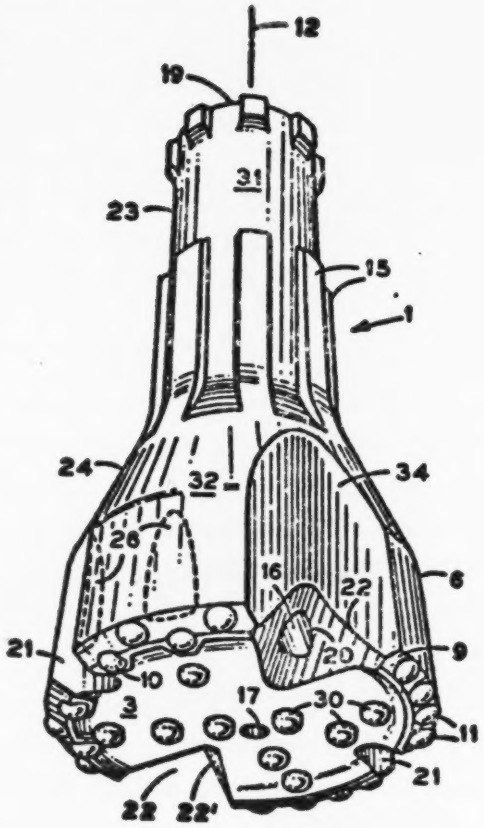
In *Anderson's Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57, 24 L.Ed.2d 258 (1969), the Supreme Court has reiterated that these requirements must be strictly observed, and as recently as *Walden, Inc. v. Alexander Mfg. Co.*, 423 F.2d 91 (5th Cir. 1970), this Circuit has restated the necessity of such observance and the deficiency of a broad, conclusory analysis.

Since we affirm the finding of invalidity, we need not consider the question of infringement. *See Waldon, Inc., v. Alexander Mfg. Co., supra; Swofford v. B & W, Inc.*, 395 F.2d 362 (5th Cir. 1968).

AFFIRMED.



Brown, No. 2,725,216



Kelly, No. 3,185,228

United States Court of Appeals
FOR THE FIFTH CIRCUIT

October Term, 1969

No. 28704

D. C. Docket No. CA 68-H-624

HUGHES TOOL COMPANY,
Plaintiff-Appellant,

versus

INGERSOLL-RAND COMPANY,
Defendant-Appellee.

Appeal from the United States District Court for the Southern District of Texas

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Before GODBOLD, SIMPSON and MORGAN, Circuit Judges.

JUDGMENT

This cause came on to be heard on the transcript of the record from the United States District Court for the Southern District of Texas, and was argued by counsel;

ON CONSIDERATION WHEREOF, It is now here ordered and adjudged by this Court that the judgment of the said District Court in this cause be, and the same is hereby, affirmed;

It is further ordered that plaintiff-appellant pay to defendant-appellee, the costs on appeal to be taxed by the Clerk of this Court.

February 5, 1971

Issued As Mandate:

IN THE

United States Court of Appeals

FOR THE FIFTH CIRCUIT

No. 28704

HUGHES TOOL COMPANY,
Plaintiff-Appellant,

versus

INGERSOLL-RAND COMPANY,
Defendant-Appellee.

Appeal from the United States District Court for the Southern District of Texas

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(March 17, 1971)

ON PETITION FOR REHEARING

Before GODBOLD, SIMPSON and MORGAN, Circuit Judges.

PER CURIAM:

IT IS ORDERED that the petition for rehearing filed in the above entitled and numbered cause be and the same is hereby DENIED.